

**REMARKS**

Reconsideration and withdrawal of the objections to and rejections of the application are respectfully requested in view of the amendments and remarks herewith, which place the application into condition for allowance.

**I. STATUS OF CLAIMS AND FORMAL MATTERS**

Claims 25-47 are pending. Claims 1-24 are cancelled and new claims 25-47 are added, without prejudice.

No new matter is added by these amendments.

It is submitted that these claims are patentably distinct from the prior art cited by the Examiner, and that these claims are in full compliance with the requirements of 35 U.S.C. §112. The amendments and remarks herein are not made for the purpose of patentability within the meaning of 35 U.S.C. §§ 101, 102, 103 or 112; but rather the amendments and remarks are made simply for clarification and to round out the scope of protection to which Applicants are entitled. Support for the new claims is found throughout the specification and from the cancelled claims.

**II. OBJECTIONS TO THE SPECIFICATION**

The specification was objected to for alleged informalities. The objection is traversed. The amendments to the specification render the rejection moot.

Consequently, reconsideration and withdrawal of the objection to the specification are respectfully requested.

**III. 35 U.S.C. §112, SECOND PARAGRAPH, REJECTIONS**

Claims 1-24 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. The rejection is respectfully traversed.

The amendments to the claims, without prejudice, render the rejection moot. Further, Applicants believe new claims 25-47 comply with the requirements of Section 112. The Examiner is respectfully reminded that a claim is definite if the scope of the subject matter embraced by a claim is clear and if the applicant has not otherwise indicated that he intends the claims to be of a different scope. *In re Borkowski*, 164 U.S.P.Q. 642 (C.C.P.A. 1970). The “distinctly claim” requirement of 35 USC § 112, second paragraph, means that the claims must have a clear and definite meaning when construed in light of the complete patent document. *Standard Oil Co. v. American Cyanamid Co.*, 227 U.S.P.Q. 293 (Fed. Cir. 1985). The test of definiteness is whether one skilled in the art would understand the scope of the claim when read in light of the specification. *Morton Int. Inc. v. Cardinal Chem. Co.*, 28 U.S.P.Q.2d 1190 (Fed. Cir. 1993). And the degree of precision necessary is a function of the subject matter claimed. *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 231 U.S.P.Q. 81, 94-95 (Fed. Cir. 1986). Indeed, the Federal Circuit noted in *Hybritech* that:

‘[I]f the claims, read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more’ [and] the claims are clearly definite.

*Id.* at 94 (citing to *Shatterproof Glass Corp. v. Libbey Owens Ford Co.*, 225 U.S.P.Q. 634, 641 (Fed. Cir. 1985)) (emphasis added).

Against this background, as claims 25-47, read in light of the specification, apprise a skilled artisan of both the utilization and scope of the invention, and as the language is as precise as the subject matter permits, the instant claims are definite. A contrary conclusion would not only be against public policy, but would also be impermissible as a matter of law. *See Hybritech*, 231 U.S.P.Q. at 95 (“As a matter of law, no court can demand more.” ).

Consequently, reconsideration and withdrawal of the Section 112, second paragraph, rejection are respectfully requested.

#### IV. 35 U.S.C. §§ 102/103 REJECTIONS

Claims 1-9, 11-16 and 18-23 were rejected under 35 U.S.C. §102(a) as allegedly being anticipated by Richter et al. (AQ) or Pompe et al. (AR); 1-9, 11-16 and 18-23 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Richter et al. or Pompe et al.; claim 10 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Richter et al. or Pompe et al. in view of U.S. Patent No. 5,560,960 to Singh and U.S. Patent No. 5,670,680 to Newman; and claims 17 and 24 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Richter or Pompe in view of U.S. Patent No. 5,560,960 to Singh. The rejections will be collectively addressed and are traversed. None of the cited documents teach, enable, suggest or motivate a skilled artisan to practice the Applicants' invention.

The instant claims are directed to a process for producing metal nanoparticle-nucleic acid composites wherein metal complex-nucleic acid conjugates are formed by the specific metalation of bases of the nucleic acid and/or interactive ligand binding, and wherein the metal nanoparticles are catalytically active towards electroless metallization. None of the cited documents teach or enable such an invention.

Further, one of the unique features of the instant invention is the initial direct and selective binding of metal complexes to the nucleic acid, which are initially small but nevertheless capable of being controllably enlarged. Neither Richter nor Pompe teach, suggest or enable such a strategy to produce metalated nucleic acids. Additionally, neither of these documents disclose DNA/metal complexes for the formation of DNA templated-nanowires, thereby negating any motivation to a skilled artisan to practice Applicants' invention.

The palladium nanoparticles of Richter are substantially wider than DNA, between 3-5 nm for double-stranded DNA. By contrast, the instant invention produces platinum nanoparticles on double-stranded DNA that are no wider than the DNA, wherein these particles are catalytic towards electroless deposition of gold and can be enlarged in a controlled manner. Additionally, and also in contrast to Richter, the sub-nanometer size of the platinum particles in the nanoparticle/DNA composite produced according to the instant invention are stable over time.

Pompe is similarly defective. Further, the method in Pompe does not bind the metal complex to DNA before reducing it, in contrast to the instant invention.

Neither the Newman nor Singh patents remedy these inherent deficiencies. Newman relates to preparation of octahydrofluorenyl metal complexes, such as octahydrofluorenyltitanium trichloride, or ring substituted octahydrofluorenyl metal complexes wherein the metal is in the +2, +3 or +4 formal oxidation state by reduction of tetra- or hexahydrofluorenyl metal complexes. Singh, in turn, relates to nanoparticle metal powder having a controllable and narrow size distribution for electrolessly plating a metal on the interior of a vesicle made of at least one polymerized phospholipid. Neither document, however, teaches, suggests or motivates a skilled artisan to combine its teachings with that of Richter and Pompe in order to practice a process for producing metal nanoparticle-nucleic acid composites wherein metal complex-nucleic acid conjugates are formed by the specific metalation of bases of the nucleic acid and/or interactive ligand binding, and wherein the metal nanoparticles are catalytically active towards electroless metallization.

It is well-settled, and the Examiner is respectfully reminded, that “obvious to try” is not the standard upon which an obviousness rejection should be based. *See In re Fine*. And as

“obvious to try” would be the only standard that would lend the Section 103 rejection any viability, the rejection must fail as a matter of law. Therefore, applying the law to the instant facts, the rejection is fatally defective and should be removed.

Consequently, reconsideration and withdrawal of the Section 102 and 103 rejections are believed to be in order and such actions are respectfully requested.

#### **V. OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTION**

Claims 1-24 were provisionally rejected under the judicially-created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-22 and 24-35 of co-pending Application Serial No. 10/210,812 (the “‘812 application”). Applicants disagree.

A finding of obviousness-type double patenting turns on whether the invention defined in a claim in the application in issue is an obvious variation of the invention defined in a claim of a prior patent. *See, e.g., In re Berg*, 46 U.S.P.Q.2d, 1226 (Fed. Cir. 1998). In order for an obviousness-type double patenting rejection to stand, the Examiner must show that the claims in this application are obvious **based solely on the claims in the prior patent**; the disclosure in the prior patent can not be used as prior art.

When comparing the claims of the ‘812 application to the claims of the instant application, the Examiner’s provisional double patenting rejection is wrong. For example, nowhere in the claims of the ‘812 application is there a teaching or suggestion of removing non-conjugated metal complexes and/or non-conjugated by-products. As the requisite suggestion and motivation are absent from the claims of the ‘812 application, the obviousness-type double patenting rejection must fail as a matter of law.

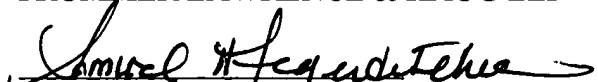
Consequently, reconsideration and withdrawal of the provisional obviousness-type double patenting rejection are respectfully requested.

CONCLUSION

By this Amendment, claims 24-47 should be allowed; and this application is in condition for allowance. Favorable reconsideration of the application, withdrawal of the rejections and objections, and prompt issuance of the Notice of Allowance are, therefore, all earnestly solicited.

Respectfully submitted,  
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